

Claims

- [c1] An OLED device comprising:
a substrate having an active region defined thereon, the active region comprises pixels; and
pillars along a first direction on a substrate, wherein the pillars comprise a tapered profile and grooves between the pillars, the pillars extend outside an active region of the substrate to prevent electrical shorting.
- [c2] The OLED device of claim 1 wherein:
the pixels comprise an organic functional layer formed by depositing a solution having organic functional material dissolved in a solvent; and
the pillars are inert to the solvent.
- [c3] The OLED device of claim 2 wherein the pillars comprise a photosensitive material, the pillars are cured to render the pillars inert to the solvent.
- [c4] The OLED device of claim 3 wherein the pillars extend outside the active region to the edges of the substrate.
- [c5] The OLED device of claim 1 wherein the pillars comprise a photosensitive material, the pillars are cured to render the pillars inert to the solvent.

- [c6] The OLED device of claim 5 wherein the pillars extend outside the active region to the edges of the substrate.
- [c7] The OLED device of claim 1 wherein the pillars extend outside the active region to the edges of the substrate.
- [c8] A flexible OLED device comprising:
a flexible substrate having an active region defined thereon, the active region comprises OLED pixels; and
pillars along a first direction on a substrate, wherein the pillars comprise a tapered profile and grooves between the pillars, the pillars extend outside an active region of the substrate to prevent electrical shorting.
- [c9] The flexible OLED device of claim 8 wherein the flexible substrate comprises plastic or thin glass.
- [c10] The OLED device of claim 9 wherein:
the pixels comprise an organic functional layer formed by depositing a solution having organic functional material dissolved in a solvent; and
the pillars are inert to the solvent.
- [c11] The OLED device of claim 10 wherein the pillars comprise a photosensitive material, the pillars are cured to render the pillars inert to the solvent.
- [c12] The OLED device of claim 11 wherein the pillars extend

outside the active region to the edges of the substrate.

[c13] The OLED device of claim 10 wherein the pillars comprise a photosensitive material, the pillars are cured to render the pillars inert to the solvent.

[c14] The OLED device of claim 11 wherein the pillars extend outside the active region to the edges of the substrate.

[c15] The OLED device of claim 10 wherein the pillars extend outside the active region to the edges of the substrate.

[c16] An OLED device comprising:
a substrate having an active region defined thereon, the active region comprises OLED pixels, wherein an organic functional layer of the OLED pixels is formed by depositing a solution having organic functional material dissolved in a solvent; and
pillars along a first direction on a substrate, wherein the pillars are inert to the solvent and comprise a tapered profile and grooves between the pillars, the pillars extend outside an active region of the substrate to prevent electrical shorting.